REMARKS

The present Amendment is in response to the Office Action having a mailing date of September 9, 2004. Claims 1-9 are pending in the present Application. Claims 1-9 are rejected. Claim 1 has been amended to include the limitations of claim 2. Claim 2 has been cancelled. Consequently, claims 1, 3-9 remain pending in the present application.

Claim Objections

The Examiner states,

> **1. Claim 2 is objected to because of the following informalities: At claim 2, line 1 recites a "BOLTS" interface. This term is not clearly defined nor spelled out in the Specification or claim. The Office interprets the "BOLTS" interface to be a part that attaches to the front end of a process tool. Any further rejection of, or indications of the allowability of, either claim 2 are based on claim 2, as it is understood by the Office. Appropriate correction is required.**

Applicant has amended the specification to indicate that BOLTS interface comprises the box opener-loaded tool standard interface. The BOLTS box opener-loaded tool standard interface is a defined Industry Standard for physically interfacing load ports to process tools. Specifically, the standard is intended to interface load ports to EFEMs (Equipment Front End Modules). EFEMs usually incorporate transfer mechanisms (robots) to facilitate the movement of substrates (wafers) into and out of a process tool. The BOLTS interface allows different pieces of equipment to be accommodated through one defined physical boundary.

Claim Rejections – 35 USC 103

The Examiner states,

3. Claims 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. (6,135,698) in view of Slocum et al. (5,733,024).

Regarding claim 1, Bonora et al. (6,135,698) (col. 6, line 14-67) discloses a module comprising:

an enclosure 100, and a frame 108 coupled to the enclosure 100, the frame 108 including a standard interface to the process tool (col. 6 line 33), but lacks a kinematic interface to the enclosure to facilitate, repeatable and high accuracy docking of the enclosure.

Slocum et al. (abstract) teaches a kinematic interface 16 to the enclosure 12 to facilitate, repeatable and high accuracy docking of the enclosure 12.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Bonora et al. (6,135,698) by providing a kinematic interface to the enclosure to facilitate, repeatable and high accuracy docking of the enclosure in order to precisely locate a module relative to the base frame in view of the teachings of Slocum et al.

Furthermore, the limitation of "for housing a device to be tested" in claim 1 has been considered, but does not result in a structural difference. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Regarding claim 3, Bonora et al. (6,135,098) discloses that the process tool comprises an equipment front end module (EFEM) (col. 6, line 33).

Regarding claim 6, Bonora et al. (col. 6, lines 44-50) discloses an internal air path to keep a substrate (col. 6 line 45) located therein substantially clean.

4. Claims 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. (6,135,698) modified as taught by Slocum et al. as applied to claim 1 above, and further in view of Bonora et al. (6,138,721).

Regarding claim 2, Bonora et al. (6,135,698) modified by Slocum et al. discloses the invention substantially as claimed, but lacks a BOLTS interface.

Bonora et al. (6,138,721) teaches a BOLTS interface 12.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the modified device of Bonora et al. (6,135,698) by providing a BOLTS interface in order to provide an adjustable interface in view of the teachings of Bonora et al. (6,138,721).

Regarding claim 4, the teachings of Slocum et al further include that the kinematic interface 16 comprises a plurality of spherical shaped objects (col. 1, lines 41-42) on the frame 12 which engage a plurality of machined features on the enclosure 12.

Regarding claim 5, the teachings of Slocum et al further include that the machined features 30 comprise a cone, groove or flat machined features. See abstract of Slocum et al.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. (6,135,698) modified as taught by Slocum et al. as applied to claim 6 above, and further in view of Behl et al. (6,193,339 B1).

Regarding claim 7, Bonora et al. (6,135,698 modified by Slocum et al. discloses the invention substantially as claimed, but lacks a second internal air path to cool electronics via the use of fans to draw heat air from the electronics out of the enclosure via ducts.

Behl et al. (col. 3, lines 30-35) teaches a second internal air path to cool electronics via the use of fans 22 to draw heat air from the electronics out of the enclosure 10 via ducts (figure 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the modified device of Bonora et al. (6,135,698) by providing a second internal air path to cool electronics via the use of fans to draw heat air from the electronics of the enclosure via ducts in order to dissipate heat and facilitate air flow in view of the teachings of Behl et al.

6. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonora et al. (6,135,698) modified as taught by Slocum et al. as applied to claim 1 above, and further in view of Behl et al. (6,193,339 B1).

Regarding claim 8, Bonora et al. (6,135,698) modified by Slocum et al. discloses the invention substantially as claimed, but lacks that the enclosure includes fan modules.

Behl et al. (col. 3, lines 30-35) teaches that the enclosure 10 includes fan modules 22.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the modified device of Bonora et al. (6,135,698) by providing that the enclosure includes fan modules in order to dissipate heat and facilitate air flow in view of the teachings of Behl et al.

Furthermore, the limitation of "for removing hot air from the module" in claim 8 has been considered, but does not result in a structural difference. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Regarding claim 9, the teachings of Behl et al. further include that the enclosure 10 includes an exhaust vent (figure 2).

Applicant respectfully traverses these rejections.

Present Invention

A module for use in a process is disclosed. The module comprising an enclosure for housing a device to be tested; and a frame coupled to the enclosure. The frame includes a BOLTS interface to the process tool and a kinematic interface to the enclosure to facilitate repeatable and high accuracy docking of the enclosure. These could be inspection components, measurement devices or other forms of instrumentation that are used for gathering information and/or analyzing data. The equipment could be used for, but not limited to, the fabrication of substrates, including semiconductor devices, reticles, and other products.

Argument

Borona (6,135,698) specifically defines a piece of equipment for supporting, opening and closing, a SMIF pod. A SMIF pod is used to transport and store substrates (wafers). We have not claims on opening and closing SMIF pods. There are no features in our design to support SMIF pods. This patent's "standard interface to a tool" is not BOLTS.

Borona (6,135,698) refers to a very unique way of attaching to a BOLTS interface for one specific piece of equipment (wafer load port). It specifically defines a method that incorporates a ball joint for tilting the load port into place and does not specify a true kinematic mount for the module.

Slocum (5,733,024) refers to a method for creating a modular "Track" photoresist tool for processing wafers. This patent defines a complete process tool with substrate handling and predisposed function equipment and station along a linear track. The kinematic mounts are for locating their specific modules used in their tool and not for the enclosure.

Behl (6,139,339) defines a docking adapter for computer disk drives in a rack. This is essentially a fancy removable hard drive. They have included air fans to cool the drives and specified an internal air path. They require an air path due to the fact the fans blow directly at the drives and without it there is no way for the hot air to exit. This patent's claim does not include a

true kinematic mount. This patent's claim for internal air path is not for isolation and contamination control.

Tullis (4,532,970) is the original patent for SMIF load ports and does not directly apply to anything we are claiming but could be referenced.

Kerrigan (6,134,107) is for cooling a computer rack enclosure with top to bottom air flow.

None of the references disclose a frame that includes a BOLTS interface to the process tool and a kinematic interface to the enclosure. Slocum, although describing a kinematic mount, the mount is for loading specific modules used in the tool not a kinematic interface to the enclosure as recited in claim 1. None of the references either singly or in combination disclose the invention as recited in claim 1.

Claims 3-9 are also allowable because they depend from an allowable base claim.

Accordingly, Applicant respectfully submits that claims 1 and 3-9 are now all in allowable form. Consequently, allowance and passage to issue of claims 1 and 3-9 of the present application are respectfully requested.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

SAWYER LAW GROUP LLP

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Date

Joseph A. Sawyer, Jr.
Attorney for Applicant(s)
Reg. No. 30,801
(650) 493-4540